

SEA-GOING HOSPITAL—U. S. S. RELIEF

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» » » IF YOU WERE ONE of the thousands who visited the U. S. S. Relief, hospital ship of the United States fleet, during the meeting of the American College of Surgeons at San Francisco, or at other ports she has visited, you will probably understand how a hospital can be built into a sea-going ship. Most of our visitors, of whom we had 22,000 in one week at Portland, Oregon, commented on the cleanliness, the good food, the complete equipment and the general air of contentment. The commonest questions were, "Can you do surgical operations at sea?" and "How do you run the hospital?"

The first question is quickly answered. We operate at sea exactly as we do in port or on shore. Only once during the seventeen years of active service of the Relief has it been necessary, so far as I can find, to postpone an operation because of bad weather. That was during a typhoon off Auckland, New Zealand, in 1925. During many years of surgery at sea, I once had to be tied to the operating table to keep me steady while working. That

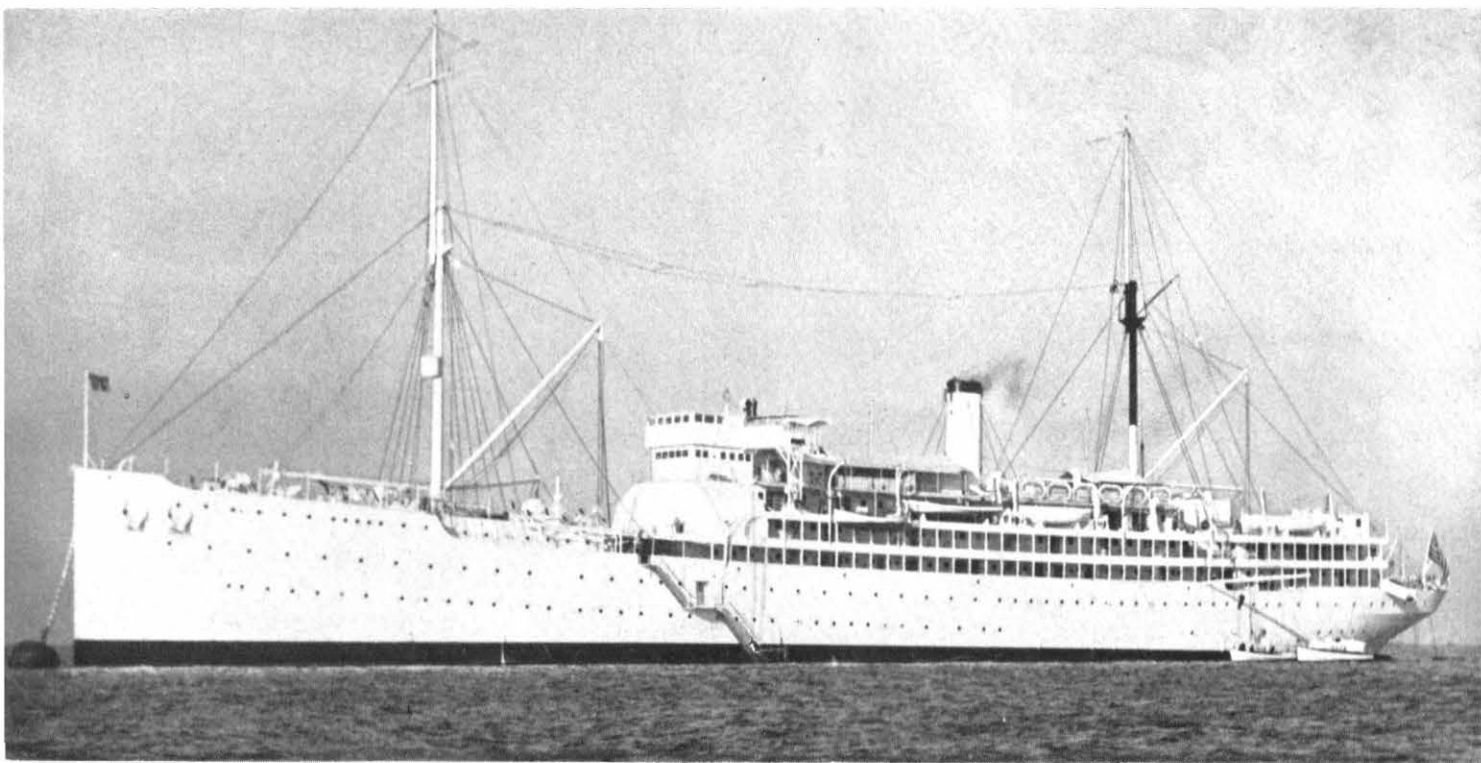


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was in the old hospital ship Mercy, off the coast of Oregon, in 1922. One soon comes to accommodate oneself unconsciously to the movement of the ship, and the operating table being firmly secured to the deck gives something solid to brace the operator.

For the second question, "How do you run the hospital?" a little more space is required. We must first explain that there are several types of hospital ships, each of which is planned to perform a different function. There is the fleet hospital ship, which serves as a mobile hospital for a naval unit; the hospital transport, which carries disabled men from a military area to hospitals at home, and rescue ships which act as temporary floating hospitals in time of disaster. The Relief belongs to the first group.



The fleet hospital ship functions like a navy ship with a large sickbay. Maintenance and handling of the ship are looked after by the line officers and crew, the same as on all navy ships. The supply officer provides all ordinary stores, fuel and provisions, and pays all hands. The chaplain looks after the moral and spiritual welfare of the personnel, and arranges their entertainment. The medical and dental officers, nurses and hospital corpsmen care for the patients and maintain the spaces which belong to the medical department.

All this is coordinated under definite rules which are laid down in the Navy Regulations, the Manual of the Medical Department and ship's regulations. These provide for nearly all possible contingencies and rarely does a question arise that cannot be settled by reference to the book. The personnel are conversant with the regulations and accustomed to work under them, so all moves as smoothly as in the ordinary hospital on shore.

It may be of interest to glance at the chapter headings of the Ship's Organization and Regulations, U. S. S. Relief. They are:

1. Organization—Policy—Personnel.
2. Berthing and stowage.
3. Messing.
4. Cleaning and Upkeep.
5. Deck space and Assemblies.
6. Divisional Duties and Details.
7. Ship Handling.
8. Routines, Daily, Weekly, etc.
9. Medical Department.
 - Administrative Divisions
 - Professional Divisions
 - Special Divisions; Service Divisions
 - Routine Procedures
10. Emergency Drills
 - Fire
 - Abandon Ship
 - Collision
 - Fire and Rescue
 - Man Overboard.
11. Field and Mobile Emergency Unit.
12. Leave and Liberty.
13. Disciplinary Procedures.
14. Service and Welfare.
15. Communications.
16. General Regulations.

These will suggest to the landsmen many administrative problems that he previously had not imagined.

While the fleet is in port in San Pedro, the Relief remains at anchor in a quiet berth behind the breakwater. When the fleet goes on a cruise, the hospital ship accompanies the other ships of the train. Patients are brought to the ship in boats and carried up the gangway, if in port, or hoisted aboard if at sea.

Special supplies and equipment for the medical department are secured on requisition from the naval medical supply depots at Brooklyn, New York, or Mare Island, California. In case of emergency, any needed items can be procured from local dealers. The Medical Department of the Navy has a supply table which lists several thousand items of equipment and supplies, with allowance tables for each type of navy ship. The hospital ship carries at all times a year's allowance of all supplies except biologicals and perishable articles.

The senior medical officer is responsible for the administration of the medical department, for the care of the patients, and for all the medical department equipment and supplies. There are ten other medical officers including a chief of the medical service, chief surgeon, specialists in eye, ear, nose and throat, urology, laboratory, psychiatry and roentgenology. Three dentists care for the mouths of crew and patients and do the work in the prosthetic laboratory. The three pharmacists take care of the material and stores, the clerical work and the maintenance of medical department spaces.

Nursing is done by a chief nurse and eleven members of the Navy Nurse Corps; also 124 men of the Hospital Corps of the Navy, many of whom hold certificates as technicians in various specialties.

While the rated capacity is 400 patients, at least 500 can be accommodated in an emergency. An elastic capacity is a necessary virtue in a hospital ship, for patients may come in great numbers and in such condition that they cannot be refused. Thus, H. M. S. Soudan, a British hospital ship with a capacity of 302 patients, sailed in August, 1915, from Alexandria for England with 450 sick and wounded on board. During the voyage she was able to rescue 411 survivors of the sinking Royal Edward. With nearly three times as many patients as her rated capacity, she was able to feed, clothe and care for them all.

The operating room of the Relief is large and completely equipped. An excellent test of the surgical facilities was



So much of the traumatic surgery comes from motor-vehicle injuries that this is often spoken of as the motorcycle ward.

Note the hooks on the stanchions to support a second tier of bunks when necessary, also the combination stools and bedside tables hung on the rails of several bunks.

There are two of these large wards, each of which accommodates sixty patients, and also many smaller wards.

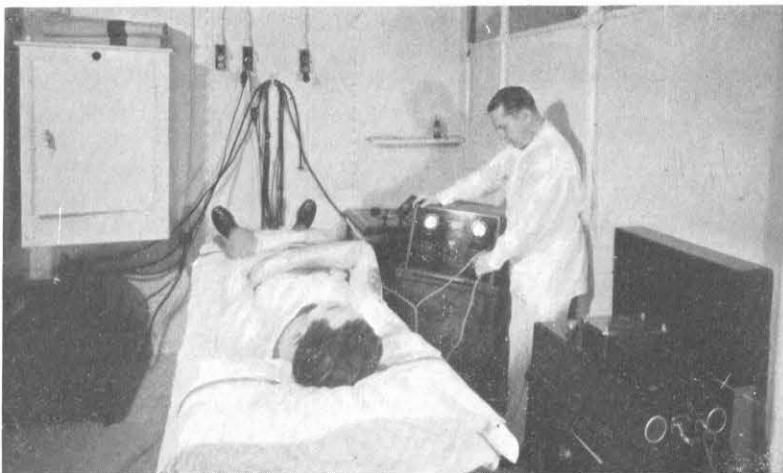
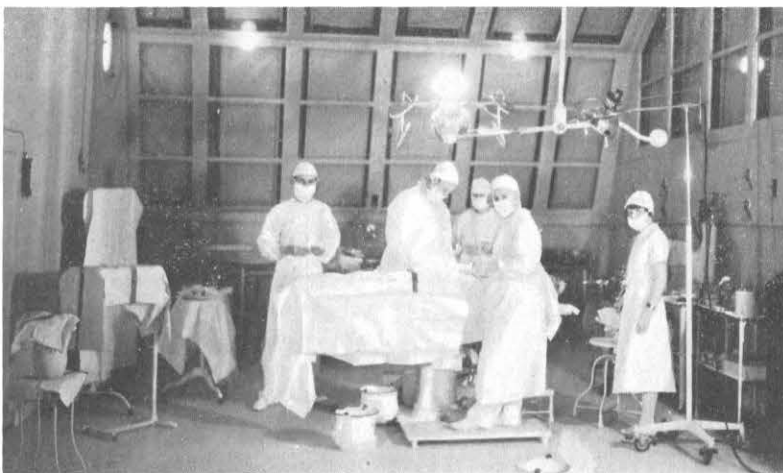
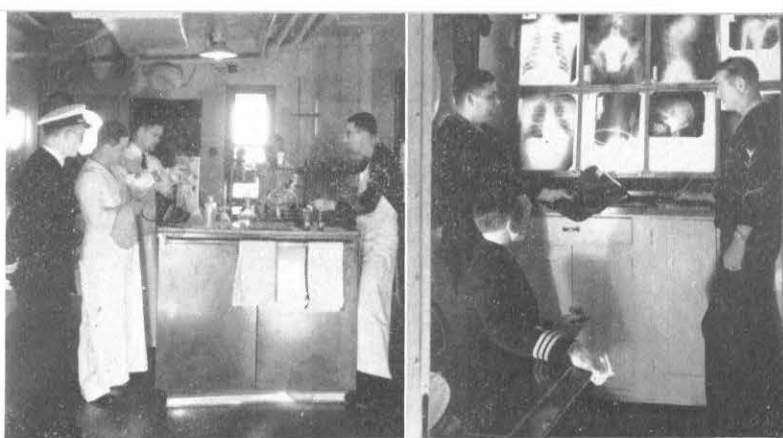
provided after the recent gun explosion on the U. S. S. Wyoming when, within a very short time, five operating teams were at work, three engaged in surgery and two giving transfusions. Laboratory, X-ray and physiotherapy equipment are the same as those of large city hospitals.

It may come as a surprise to the landsman to learn that the hazards to the Navy man on shore are much more serious than those at sea. The automobile, the motorcycle and other activities on the beach provide the majority of the injuries. For a hundred years drowning was the principal cause of death in the Navy but, for the last few years, motor-vehicle injuries have led all the rest.

At San Pedro, California, the home port of the larger part of the fleet, there are no naval hospital facilities on shore. The Relief supplies this need. There may be as many as 35,000 men on board the ships present in port, who form the clientele of the Relief. An average year's work represents about 2,500 patients admitted and some 40,000 sick days, 500 major surgical operations, 14,000 laboratory examinations, 6,000 dental examinations and treatments, 5,000 physiotherapy treatments and 1,200 out-patient consultations by the various specialists.

In addition to her seagoing clinical facilities, the Relief carries a complete 66-bed field hospital, which can be set up on shore for duty with an expeditionary force or to aid in relief work in a civil disaster. When Managua, Nicaragua, was leveled by an earthquake in 1931, the Relief was at Panama. The field hospital was loaded into planes and flown to Managua, where it helped greatly in the work of rescue. Again, in 1933, when Long Beach, California, had its severe tremor, the field hospital was set up on shore and played an important part in the relief work. It requires about one hour to get the field hospital, with all its equipment and provisions for three days, out of the hold and into the boats. After they reach the beach, about two hours are required to rig the tents, make up the cots, lay out the equipment and have a hot meal ready for staff and patients.

Hospital ships have been employed for more than three hundred years, but the U. S. S. Relief is the first to be built from the keel up for that specific purpose. Just as a building designed for a hospital would be more satisfactory than an office building taken over for such use, so the Relief is superior to converted merchant ships, which her predecessors have been. Her reputation for skillful service is so great that one day,—“believe it or not,”—a



From top to bottom: A corner of the laboratory on the U.S.S. Relief and the viewing room in the X-Ray clinic. The hospital ship provides consultation facilities for the whole fleet.

Port side of the operating room on the U.S.S. Relief. There is normally space for three operating tables, but as many as five have been in use at once during emergencies.

A corner of the Physiotherapy Clinic where complete equipment is provided for treatment of orthopedic and arthritic patients.

Patient returning to duty, with bag, hammock and necessary papers. Patients returning to duty from a naval hospital must be in all respects ready for any duty at sea, which makes the convalescent stay longer than in civil hospitals.





wounded seal flopped up on the gangway. She was taken aboard and her lacerations carefully sutured. I am informed that she returned daily at 0845 for dressings until the wounds were healed. After an absence of a month or more, she returned one morning, proudly displaying a baby seal, but that was after I had left the ship.

Many uninformed persons confuse the Relief with relief, some even calling it the relief-ship. The mother-in-law of one of our doctors was asked where her daughter's husband was on duty.

"On the Relief," she replied.

"On relief?" came the raised-eyebrows query. "Why I thought naval officers were quite well paid."

Problems of Emergency Hospital Ships

Sometime, somewhere, someone of you who read this will be assigned to duty in a hospital ship. A little advance information may help you avoid embarrassing errors and to fit more gracefully into that unaccustomed role.

A hospital ship may be designed with the greatest intelligence and foresight and built with the highest degree of fidelity and skill, but, if the administration is defective, she may entirely fail to accomplish her mission. No machine can run smoothly or efficiently if the gears do not mesh and nowhere is friction more fatal to the purpose than in such an organization. Within the medical department there should be little difficulty, because hospital standardization has progressed to such a degree that doctors, nurses, dietitians, technicians and orderlies, gathered from widely-scattered hospitals, will quickly smooth out the few differences in method that may appear.

It is in the relations of the medical department to other activities of the ship that trouble is to be expected. Sea-going men have a viewpoint vastly different from that of the landsman, and persons accustomed to the strict rituals of a hospital find it difficult to adjust themselves to the conditions and limitations which are essential to life on board ship. To find amicable solutions of the myriad problems and differences that involve the deck force, engineer's force, commissary and medical departments, requires more patience and understanding than is usually found either among doctors or men of the sea. A kindly sense of humor in one or both is devoutly to be wished.

Some hospital ships of the past have been under command of the doctor, who was responsible for everything. Some had the authority divided between the merchant skipper and the doctor, the latter dictating when and

where the ship should go, and the former being responsible for the safety and navigation of the ship. Others have been under complete authority of the captain, with the doctor functioning simply as head of one of the departments of the ship. Since the possibilities of friction between these two are unlimited, it is essential that some competent authority should clearly define the duties and responsibilities of each before the ship is placed in commission.

Hospital ships are of many types and uses. There is the fleet hospital ship, an official government activity, maintained to provide hospital facilities for a naval force. The U. S. S. Relief, fleet hospital ship of the United States fleet, and H. M. S. Maine, which serves Britain's Mediterranean fleet, are examples of this type. There is the hospital transport, which is employed to evacuate disabled men from a military area. Thousands of wounded were carried from the battle fields in France to England by this means during the late war. Then there is the hospital ship provided for emergency aid, either in war or civil disaster, by relief organizations, such as the Red Cross.

A doctor who is assigned to duty in a fleet hospital ship will have a relatively easy time in adjusting himself. There are definite rules for responsibility and authority, discipline, handling material and a thousand other subjects, all laid down in a book which is somewhat smaller than an unabridged dictionary. All disputes are decided by the book of regulations, which embodies the experience of a hundred years or more, a most satisfactory arrangement.

The hospital transport is quite another matter. It is usually a merchant vessel, taken over in an emergency and converted as quickly as possible for hospital use. Most governments now earmark certain suitable vessels for conversion to hospital ships in time of war or other emergency. At some convenient ship-yard are assembled detailed plans for the necessary structural changes, and all the equipment and supplies that she will need. This preparation makes it possible to turn out a fully-equipped hospital ship in jig time, whenever a sudden need arises.

The personnel will be assembled from various sources. It has been found advantageous to retain, whenever possible, the merchant officers and crew, who are familiar with the ship, her peculiarities and her limitations, for ships are as highly individual as women. Medical personnel may come from government agencies, such as the Army, Navy or Public Health Service, or they may be provided by auxiliaries such as the Red Cross. That admirable organization maintains a skeleton reserve of pub-

At left: In the Ohio flood of 1937, the U. S. Coast Guard played an important part in salvaging valuables from the flooded areas.

At right: Field hospital, U. S. S. Relief. The hospital ship carries a complete 68-bed field hospital for emergency use in war or civil disaster. This shows the hospital set-up at Lahaina Maui, T. H. Doctors, nurses, dentists and corpsmen are on its staff. Everything is provided to make this emergency unit self-supporting whenever it is set up on the beach.



lic-spirited persons who are willing to leave their usual pursuits when war or disaster comes, and to devote themselves to relief work. This is a most excellent source of doctors, nurses, technicians and other trained men and women, for they are likely to show much higher standards of honor and service than persons secured from employment agencies or recruiting offices.

In the United States Naval Reserve there are groups of medical specialists, each one designed to provide a complete hospital staff. Trained in advance to work together, they will be able to establish themselves and commence work quickly whenever they are mobilized for an emergency of war or peace. Such a group should prove ideal for a naval hospital ship.

Relief ships, or rescue ships, are frequently required for emergencies of short duration, such as the floods in our inland rivers last summer. The Red Cross is the agency which normally acts in such cases, being recognized by act of Congress as the government's representative in disaster relief. With its large reserves of money and supplies and its staff of trained disaster experts, it can be mobilized overnight. Whatever craft may be available can be chartered, the supplies and staff put aboard in a few hours, and they are then ready to shove off for the scene of the disaster. Many doctors were called upon for such duty in the recent floods, sharing in the credit for the admirable results that were accomplished.

Experience teaches that volunteer personnel, serving without pay, should not be employed beyond a week or ten days. A few, with stronger sense of duty than the average, will continue to work well beyond that time, but most of them will become dissatisfied and feel the need to return to their families and to resume their regular vocations. Therefore, it is better to arrange, as soon as the acute stage of the emergency is over, to pay the standard wage to all relief workers. Those who are so disposed will welcome the opportunity to turn back their pay to the organization.

Now that we have painted the backdrop and the scenery, we can put a few actors on the stage and see what happens to them. Let us assume that Dr. Lee Scuppers, a mythical medico, of mature years and honorable standing in his community, received instructions from some competent authority to organize the medical department of the SS. Whereaway, a merchant vessel which had been taken over for use as a hospital transport either in a current war or in a disaster of great magnitude. The stores were already aboard, and the staff of doctors, nurses and

attendants were hard at work, sorting and stowing them. The lines were singled, and the ship was ready to shove off as the doctor came aboard.

Dr. Scuppers wisely brought along his copy of Dr. MacEachern's book, "Hospital Organization and Management." It would prove helpful in a thousand details, but there would be a thousand others in which he would have no precedent to guide him. He was so little versed in nautical matters that he was not quite sure whether a swab was a mop or a person. As his shore boat came alongside he stepped over a camel without even recognizing it as such. On the forecastle he saw the wild-cat and its whelps, but they meant nothing to him. At the moment, the most urgent thing was to get into a huddle with the captain and arrange many details. He was directed to the cabin, where he met Captain Harry Chest, the merchant skipper, who had followed the sea for many years, and was in no mood to take orders from a landlubber.

The two men made quick mental estimates of each other in the exchange of greetings. Then the captain opened the first round with: "How many people have you, Doctor Scuppers?"

"Seventy-two: ten doctors, twelve nurses, fifty male attendants and technicians."

"Where will they be berthed?"

"Why, I don't know, Captain. I suppose the men can move in with your crew."

"Not while I'm in command. No room there. My men have to have their space when they're off watch, and they'd be fighting all the time with your gang."

"What do you suggest?"

"Better take one of the large wards for your men, a small ward for the nurses, and another for the doctors."

"But that will reduce our patient capacity by one hundred."

"All right, you figure out a better one."

A little thought convinced the doctor that it was the most practical solution. His people must have regular sleep if they were to do their work properly, and they must have some degree of privacy during their off-watch time. Nobody had thought of this before.

"Doctor, you'd better get busy on your cleaning bill, watch list, fire bill and communication watch."

"I must admit I don't know much about those things."

"My ship's writer will help you with them," was the generous offer of Captain Chest, who was considerably mollified when he found that Dr. Scuppers had no intention of taking over the ship.

Just then the second mate brought in two men who had been fighting. One was a member of the crew, and the other was one of the hospital attendants.

"He chased me up on the forecastle and hit me," complained the former."

"He spit on the floor of the operating room," was the latter's defense.

"Two days confinement for both," decreed the captain.

"But you can't do that to my men," exploded Dr. Scuppers.

The ship's bell struck seven times. "What time is it?" he asked the quartermaster on watch.

"Fifteen-thirty, sir."

He looked at his watch. It showed half after three. He shook his head in a dazed manner. Another mystery to be looked into—ship's time.

Dr. Scuppers had a busy time that afternoon, figuring how to put into effect the ideas that he had gained during his talk with the captain. Quarters were assigned to the staff; bunks were made up, ready to receive the patients; supplies were distributed to the wards and clinics; watches were arranged. Then the tired staff began to relax, and to realize that they were hungry.

That second question that Adam asked Eve, "When do we eat?" was heard on all sides, but nobody knew the answer. A scout was despatched to investigate. "The crew had their chow at five," he reported, "and the galley is secured. Nobody thought of us." The dietitians rose to the occasion and prepared a meal from the stores which had been put aboard for patients, while Dr. Scuppers made mental note of another matter to talk over with the captain. There were food and facilities for feeding the crew and the patients, but everybody had forgotten to provide for the staff. As the doctor was leaving for the captain's cabin, at six, the head nurse stopped him and whispered in his ear. "I'll have it fixed," he replied, his voice full of assurance.

d/ The captain liked his liquor straight, strong and sufficient. Dr. Scuppers toyed with his glass and listened while his host discussed the mess problem.

"My owners feed my crew, and the allowance isn't large enough to take in any outsiders. You'll have to live on the patients' stores until you can get in touch with your outfit, and get them to provide for you. Better get off a dispatch by wireless tonight. Then you'd better detail about three men for the full-time job of mess-cooking, peeling spuds and such. We'll fix it some way for them to cook your food in the galley. That diet kitchen they fixed for the patients is just a toy."

"Thanks, Captain, and the nurses' toilet is stopped."

Captain Chest picked up the voice tube and whistled up to the bridge. "Send the ship-fitter to fix the head in the nurses' quarters," he ordered. Then, to the doctor, "Better detail one of your men, full-time, to work with our ship-fitter. This old tea-kettle doesn't make enough fresh water, so they put in salt water for the bathing and flushing, with fixtures like they put in houses. That means you're going to have plenty of plumbing trouble."

Dr. Scuppers was alarmed to think of so many of his men being detailed for service and maintenance duties.

with so few left for care and handling of patients; yet he had to admit that the work they would do would be essential.

He turned in late that night, and lay awake a long time, trying to digest all the new things he had learned during that first day. Fortunately, the problems had come one at a time. Tomorrow afternoon, with the patients coming aboard, the problems would come faster, but they would probably be more like those he was accustomed to solve.

The questions that have been suggested in this article may seem to be, like the sailor's parrot, far-fetched and full of nonsense, but they are exactly the ones that have arisen again and again in merchant ships which were hastily converted for hospital ship duty. They will continue to recur in future emergencies. Medical and surgical supplies and equipment have usually been adequate, and the hospital personnel have done their part well, but the adjustment to the limited space and facilities on board ship has caused many difficulties.

"The hell I can't," roared the captain. "I'm in command here, and I'm going to maintain discipline. That's the law."

Then Dr. Scuppers realized the necessity of having definite berthing spaces and deck limits assigned for his men and for those of the crew, if clashes between the two were to be avoided. Also, he would have to spend some time with the captain, arranging how disciplinary matters should be handled.

A knock came at the door, and one of the junior surgeons entered.

"Doctor Scuppers," said he, "there isn't enough steam for the sterilizers, and the portable X-ray won't work on this current."

"Send up the chief engineer," called the captain into the voice tube.

"Yes sir," explained that officer, after he had heard the complaint. That's correct. Those sterilizers take so much steam that we'll have to shut down the auxiliaries while they're being used. And they've put aboard enough electrical gadgets to use all the juice from two generators the size of ours."

"The answer is this, Doctor," decreed the captain, "give the chief engineer ten minutes' warning before you start the sterilizers, and use your electrical gimmicks one at a time. There'll probably be plenty of steam and juice while we're in port, but not when we're under way."

"We can handle it that way," replied the doctor.

"Come in before dinner for a snifter," invited Captain Chest. "Tomorrow we'll arrange the abandon-ship drills, and figure how we're going to get the patients aboard and into the wards. The people who made this into a hospital ship forgot all about that."

As the doctor descended the ladder to his office he realized that this new phase of his career was likely to present enough problems to give him plenty of mental exercise. He would have to revise his estimates of patient capacity, divert some of his men from care of the sick, learn a lot about ship's routine, and adjust his point of view in many ways. But one thing that he had learned gave him great pleasure—he and Captain Chest could do business together.